MDPHnet Overview

December 15, 2014
State Innovation Model Stakeholder Meeting

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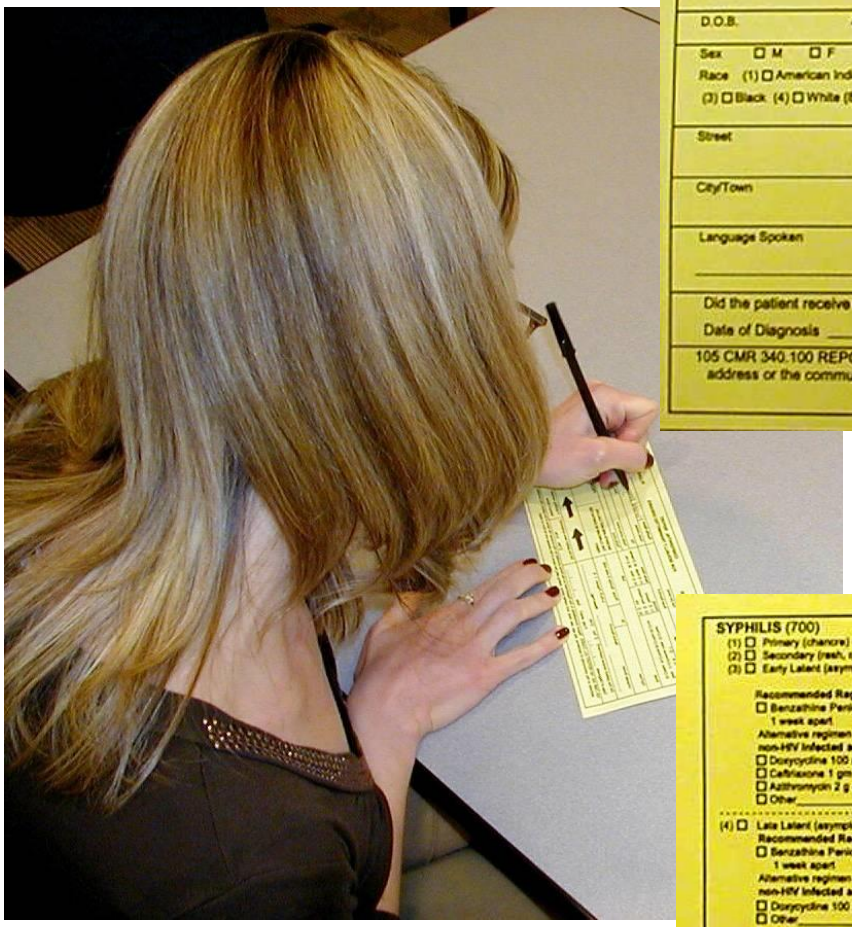
"No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring"

Introductory statement printed each week in
Public Health Reports, 1913-1951



MDPH/STD CONTROL
305 South St., Jamaica Plain, MA 02130
617-983-6940

CONFIDENTIAL REPORT FOR SEXUALLY TRANSMITTED DISEASES

PLEASE PRINT

Last Name | First (full name)

D.O.B. | Age | Social Security #

Sex ☐ M ☐ F
Race (1) ☐ American Indian (2) ☐ Asian (3) ☐ Black (4) ☐ White (8) ☐ Other (9) ☐ Unk

Ethnicity
(1) ☐ Hispanic
(2) ☐ Non-Hispanic
(9) ☐ Unk

Marital Status
(1) ☐ Single (2) ☐ Married (3) ☐ Other (9) ☐ Unk

Street | Apt#

City/Town | Zip | Phone Number & area code

Language Spoken | Medical Record # | Is this Pt. Pregnant Y N | Weeks Preg:

Did the patient receive treatment? ☐ Yes ☐ No
Date of Diagnosis ____/____/____ If yes, when? Date ____/____/____

Facility Name Harvard Vanguard Medical Associates
Facility Address
City | State | Zip Code
Facility contact person
Facility phone

PATIENTS ARE NOT CALLED, THE CLINICIAN IS CONTACTED FIRST!

PROVIDER CODE

Did the patient have symptoms? ☐ Yes ☐ No

If reporting neonatal: Mother's Name

105 CMR 340.100 REPORT ALL CASES. Report immediately to the Department on the forms provided for this purpose the name of the patient, the complete address or the community of residence, the age, sex, race, and marital status, stating also the name of the disease and its form or stage.

SYPHILIS (700)

(1) ☐ Primary (chancre) (710)
(2) ☐ Secondary (rash, other symptoms)(720)
(3) ☐ Early Latent (asymptomatic, less than 1 year) (730)

Recommended Regimen
☐ Benzathine Penicillin G 2.4 million units IM, 2 doses, 1 week apart
Alternative regimen for penicillin allergic non-pregnant non-HIV infected adult patients
☐ Doxycycline 100 mg po bid x 14 days or
☐ Ceftriaxone 1 gm IM or IV daily for 8-10 days or
☐ Azithromycin 2 g orally single dose or
☐ Other_____

(4) ☐ Late Latent (asymptomatic, over 1 year)(745)
Recommended Regimen
☐ Benzathine Penicillin G 2.4 million units IM, 3 doses, 1 week apart
Alternative regimen for penicillin allergic non-pregnant non-HIV infected adult patients
☐ Doxycycline 100 mg po bid x 28 days or
☐ Other_____

(5) ☐ Neurosyphilis (760)
Recommended Regimen
☐ Aqueous crystalline penicillin G 18 - 24 million units per day, administered as 3-4 million units IV every 4 hours or continuous infusion, for 10-14 days
☐ Other_____

(6) ☐ Congenital (Infant) (790)
Recommended Regimen
☐ Aqueous crystalline penicillin G 50,000 units/kg/dose IV every 12 hours for the first 7 days of life and every 8 hours thereafter for a total of 10 days

(7) ☐ Adult Congenital

GONORRHEA (300)

☐ Cervical DX by culture yes ☐ no ☐
☐ Urethral DX by culture yes ☐ no ☐
☐ Rectal DX by culture yes ☐ no ☐
☐ Pharyngeal DX by culture yes ☐ no ☐
☐ Other _____

Recommended Regimen for Uncomplicated Infections:
Because of continuing increases in the number of reported cases of fluoroquinolone resistant gonorrhea, Ceftriaxone 250 mg IM is the preferred regimen for the treatment of uncomplicated gonococcal infections.

Unless antibiotic susceptibility testing performed on a positive culture excludes resistance to quinolone, we no longer recommend the use of quinolones for the presumptive treatment of gonorrhea or treatment based on a non-culture test result.

☐ Ceftriaxone 250 mg IM or
☐ Other_____
PLUS (Treatment for Chlamydia trachomatis)
☐ Doxycycline 100 mg po bid x 7 days or
☐ Azithromycin 1 gm po single dose or
☐ Other _____

Questions about treatment for any STD?
Call the Division of STD Prevention at (617) 983-6940.

Disease control and prevention requires evaluation and treatment of partners.
Please counsel your patient to refer their partner(s).

The STD program can provide confidential partner notification services.
Do you want this service for your patient? ☐ Yes ☐ No
If yes, we will call you first!

If you are reporting a disease in a minor, did you file a 51A ? ☐ Yes ☐ No
If you would like more cards please check here ____

CHLAMYDIA (200)

☐ Cervical
☐ Urethral
☐ Rectal
☐ Pharyngeal
☐ Other

Recommended Regimen for Uncomplicated Infection (non-pregnant adult patient)
☐ Azithromycin 1 g po single dose or
☐ Doxycycline 100 mg po bid x 7 days or
☐ Other

Recommended Regimen for Uncomplicated Infection (pregnant patients)
☐ Erythromycin base 500 mg po qid x 7 days or
☐ Amoxicillin 500 mg tid x 7 days or
☐ Azithromycin 1 gm single dose or
☐ Other_____

PID (490)

☐ Gonococcal
☐ Chlamydia
☐ Agent Unknown

Treatment Provided
☐ Outpatient
☐ Inpatient

OTHER REPORTABLE SEXUALLY TRANSMITTED DISEASES

☐ CHANCROID (100) - Recommended Regimen
☐ Ceftriaxone 250 mg IM once or
☐ Azithromycin 1 gm po single dose or
☐ Other_____

☐ LYMPHOGRANULOMA VENEREUM (600) - Recommended Regimen
☐ Doxycycline 100 mg po bid X 21 days or
☐ Other_____

☐ GRANULOMA INGUINALE (500) - Recommended Regimen
☐ Doxycycline 100 mg po bid x at least 21 days or
☐ Trimethoprim-sulfamethoxazole 1 DS tablet (800mg/160mg) bid X at least 21 days or
☐ Other_____

☐ NEONATAL HERPES (850)
☐ OPHTHALMIA NEONATORUM
☐ CONDYLOMA ACUMINATA (EXTERNAL GENITAL WARTS) (800)

PHV-13 (Rev. 1/04)

BRFSS

Behavioral Risk Factor Surveillance System

from www.sciencewatch.com (November 12, 2010)

Our Goal:

Use EHR data to complement BRFSS and NHANES

BRFSS
outstanding breadth of coverage

…but expensive, time consuming, limited clinical detail

NHANES
outstanding clinical detail

…but expensive, time consuming, limited population coverage

Our Goal
automated disease surveillance using data routinely stored in electronic health records

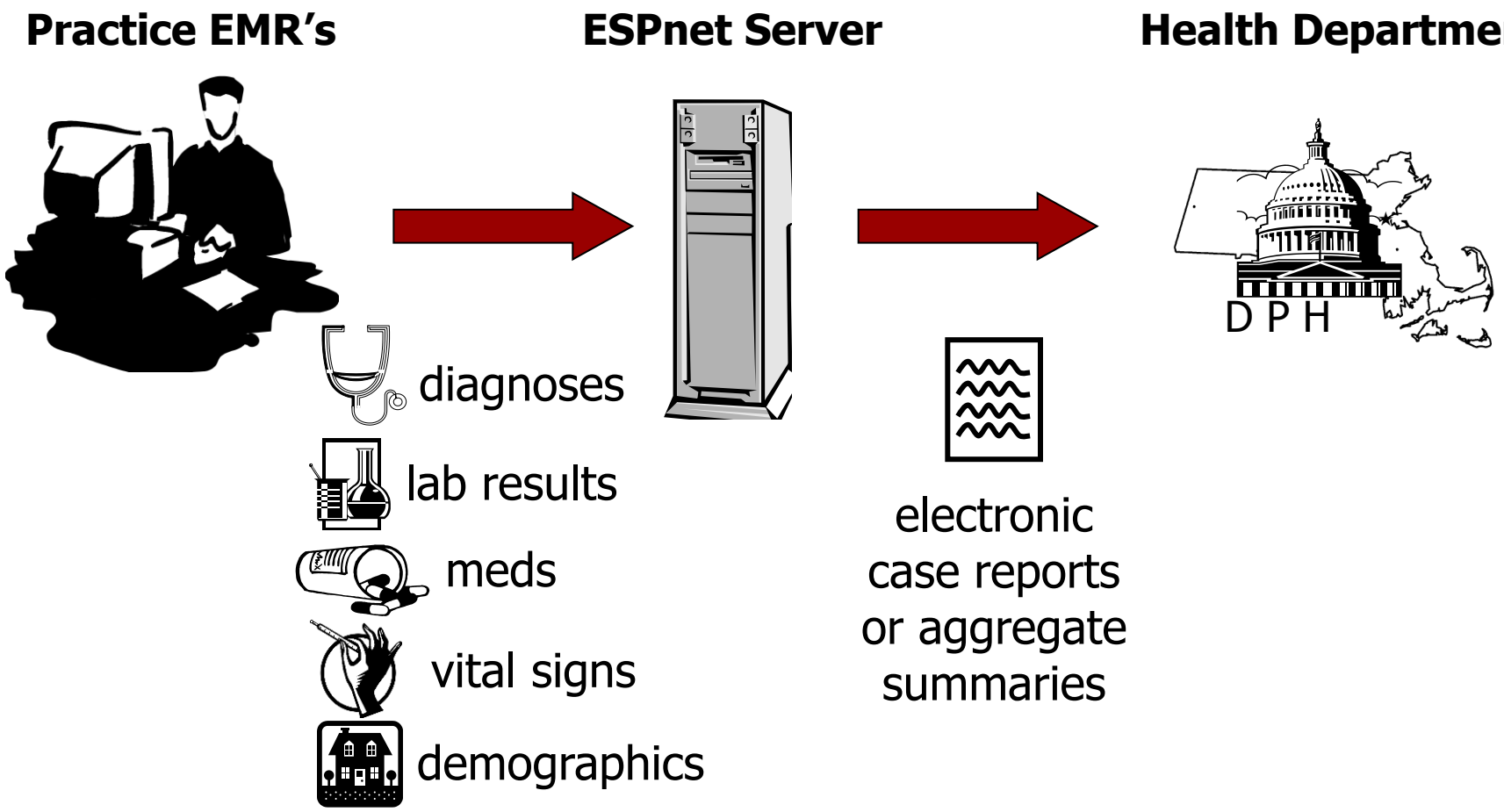
clinically detailed, efficient, & timely disease surveillance from large, diverse populations without added work & cost for health departments or clinicians

Electronic Support for Public Health (ESPnet)

- Software and architecture to extract, analyze, and transmit electronic health information from providers to public health.
  - Surveys codified electronic health record data for patients with conditions of public health interest
  - Generates secure electronic reports for the state health department
  - Designed to be compatible with any EHR system

JAMIA 2009;16:18-24
MMWR 2008;57:372-375
Am J Pub Health 2012;102:S325–S332

ESP: Automated disease detection and reporting for public health



JAMIA 2009;16:18-24
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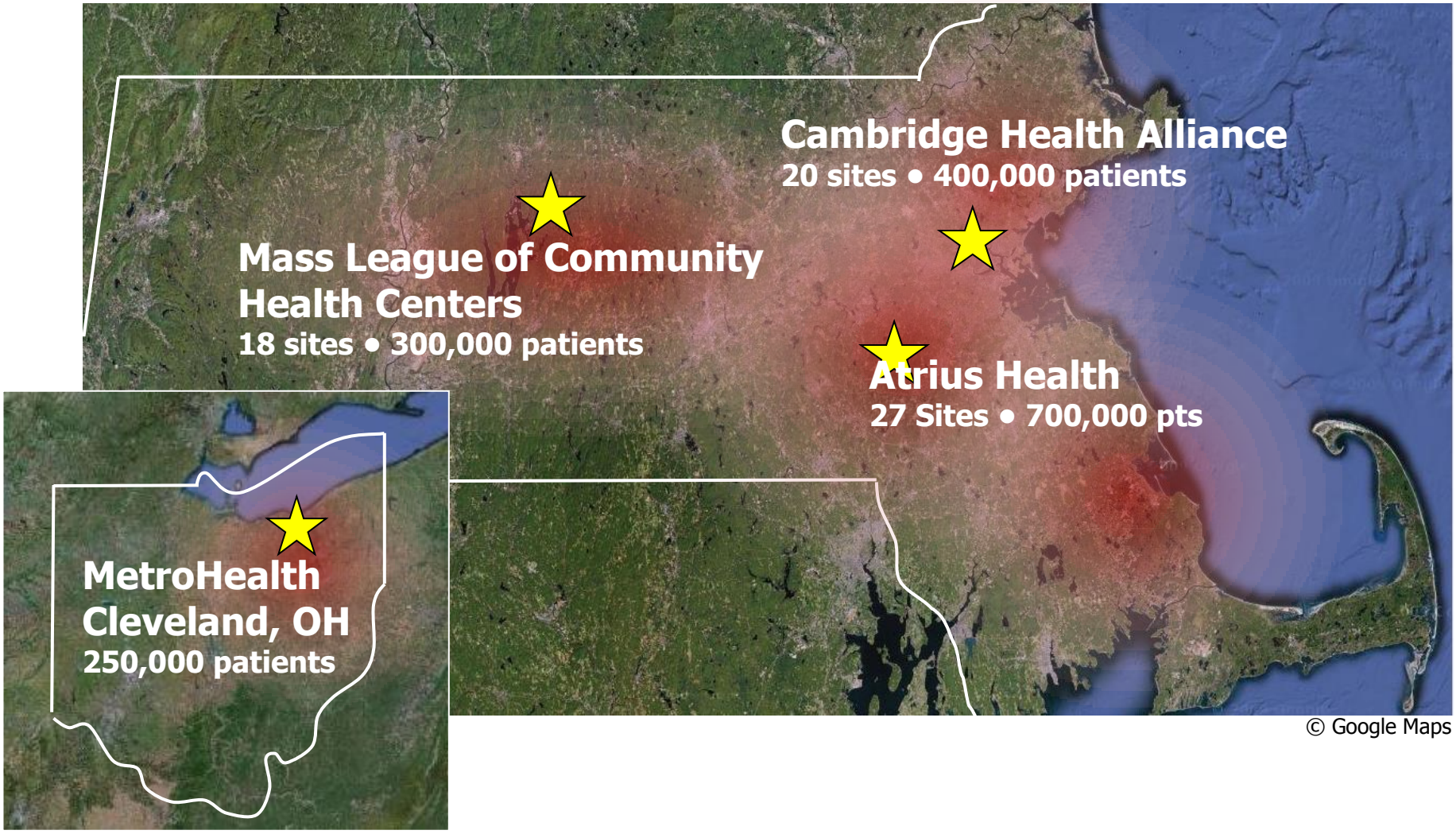
Current ESPnet Installations



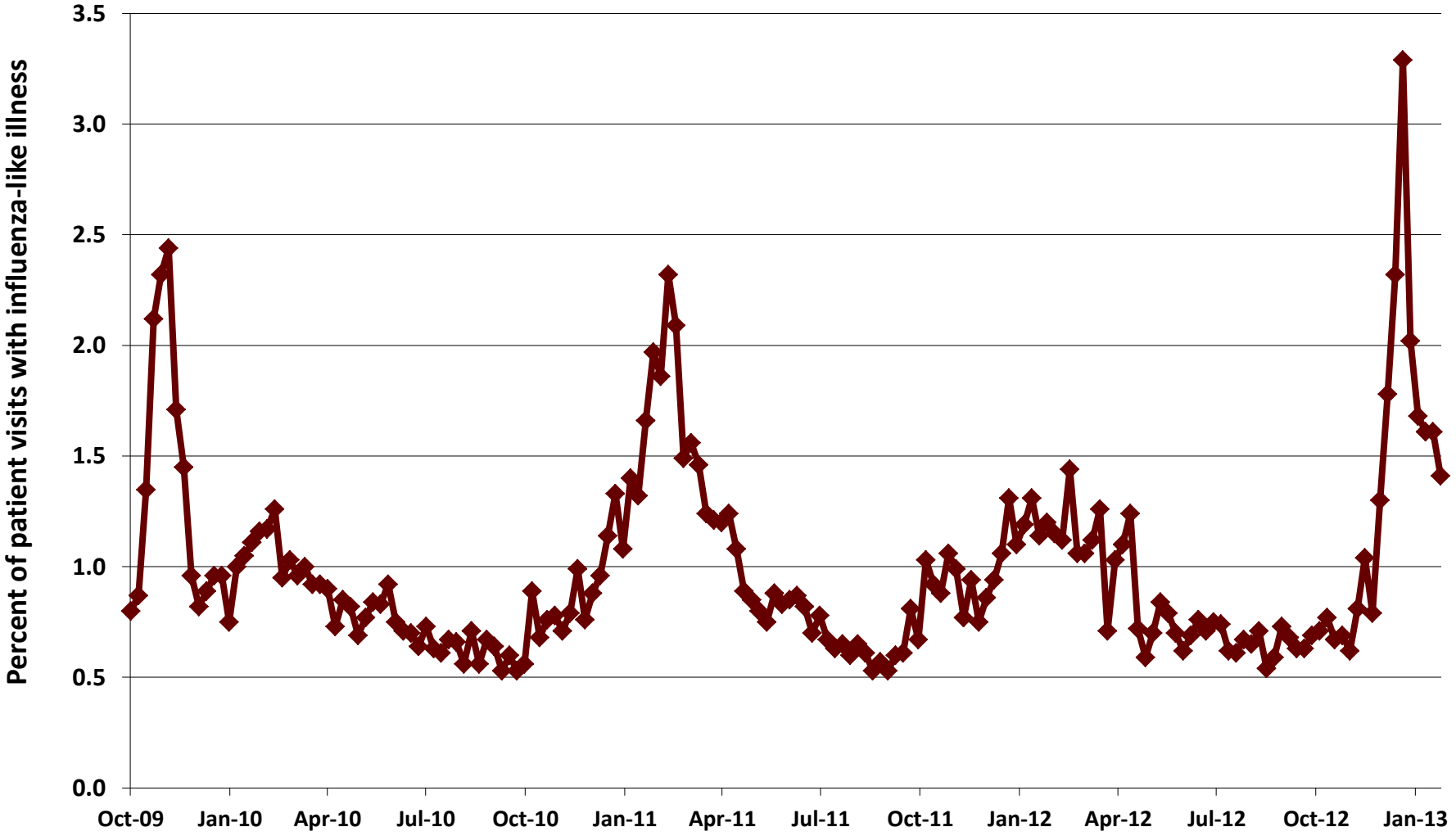
ESPnet Case Reporting

Atrius, CHA, MetroHealth, 2006-2014

Condition	Total Cases
Chlamydia	22,001
Gonorrhea	4,554
Pelvic inflammatory disease	311
Acute hepatitis A	34
Acute hepatitis B	112
Acute hepatitis C	341
Tuberculosis	437
Syphilis	1478

Syndromic Surveillance

Influenza-Like Illness, Atrius Health, 2009-2013



Chronic Disease Surveillance

Diabetes

Hypertension

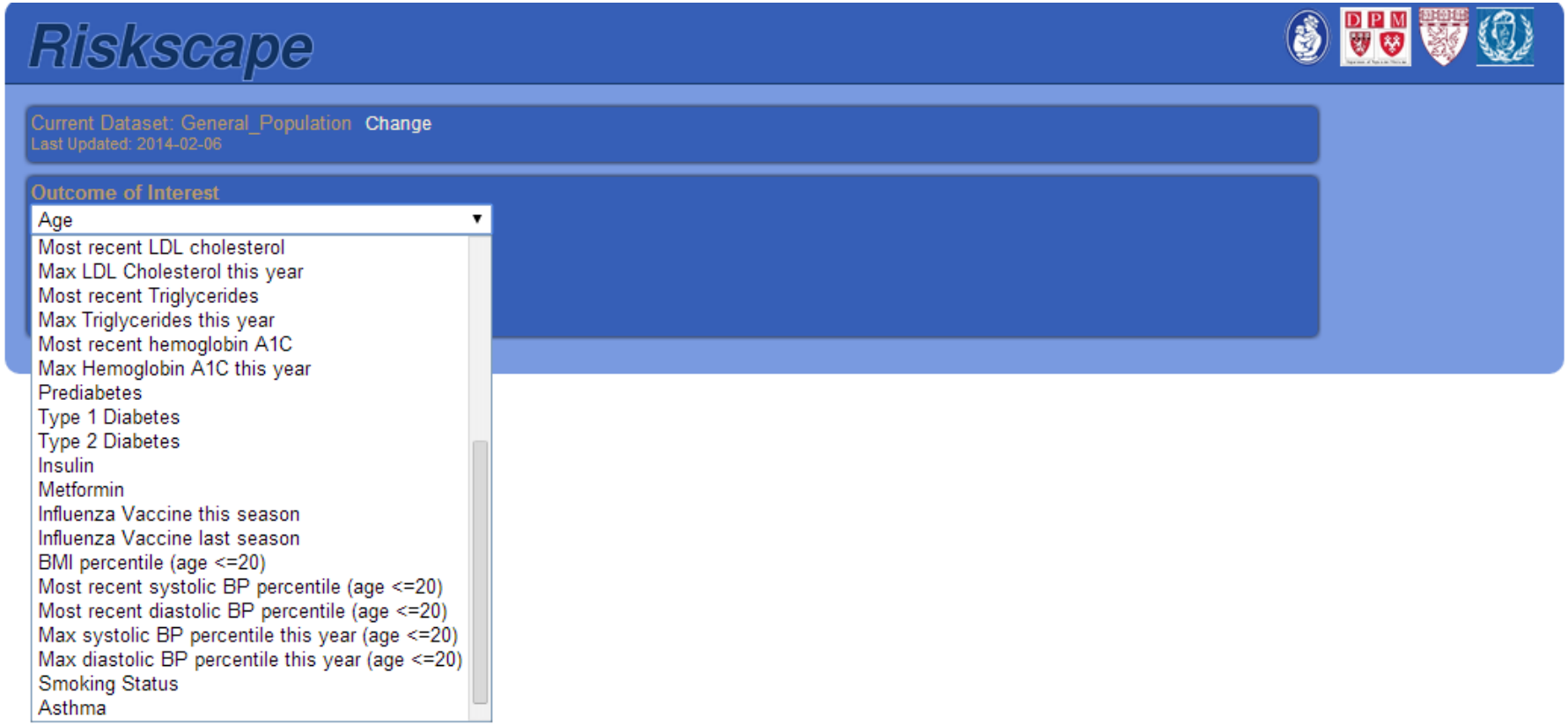
Asthma

Obesity

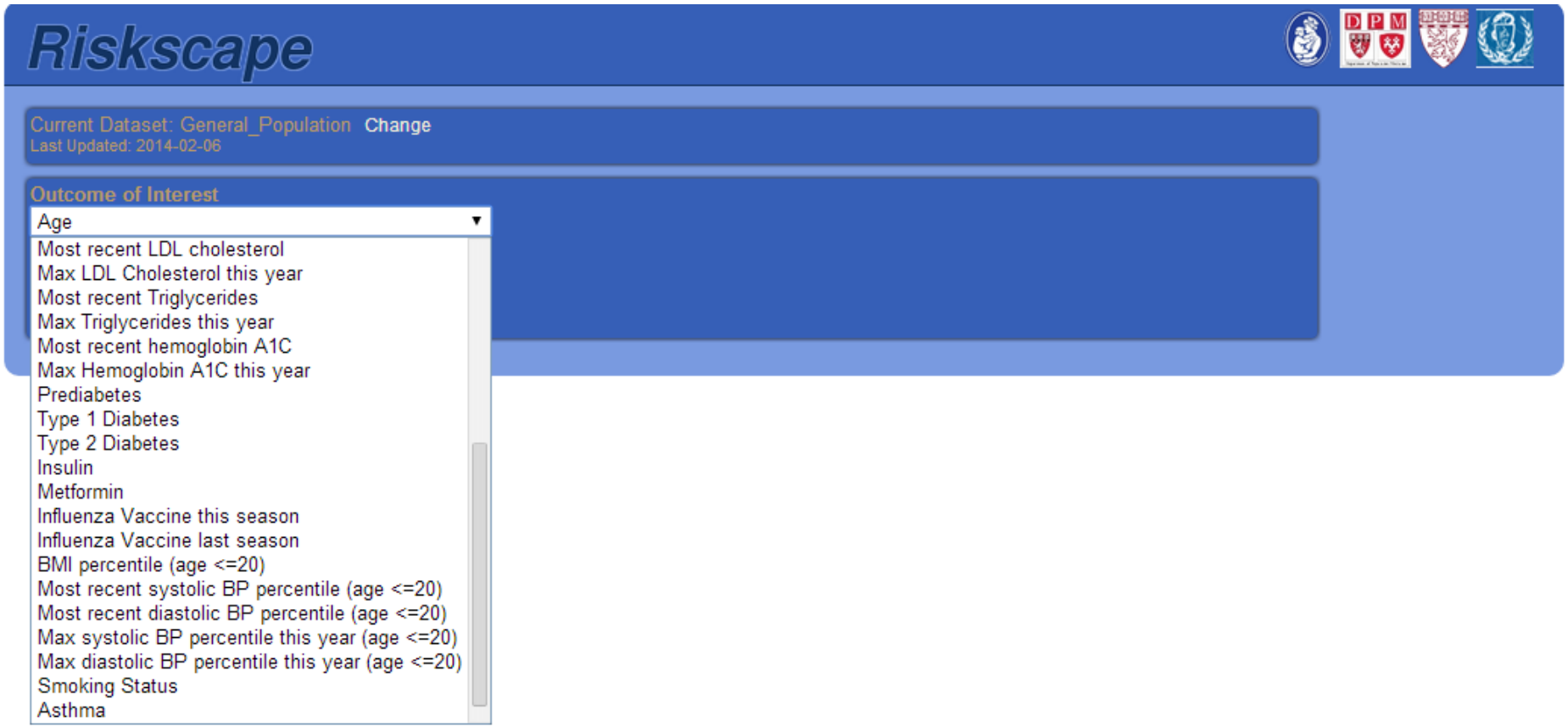
Smoking

RiskScape

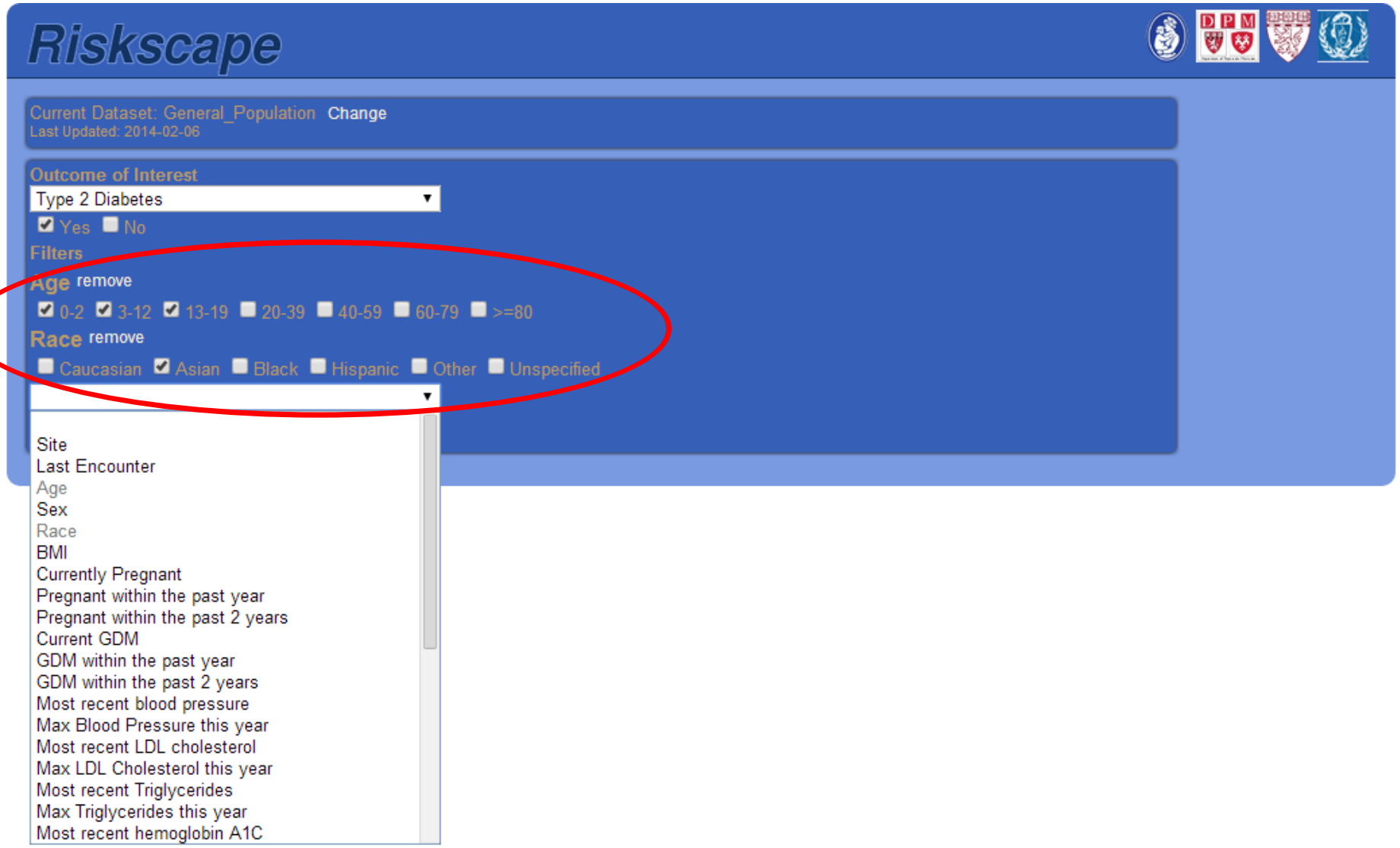
Automated mapping and graphing tools to facilitate exploring data rapidly and easily



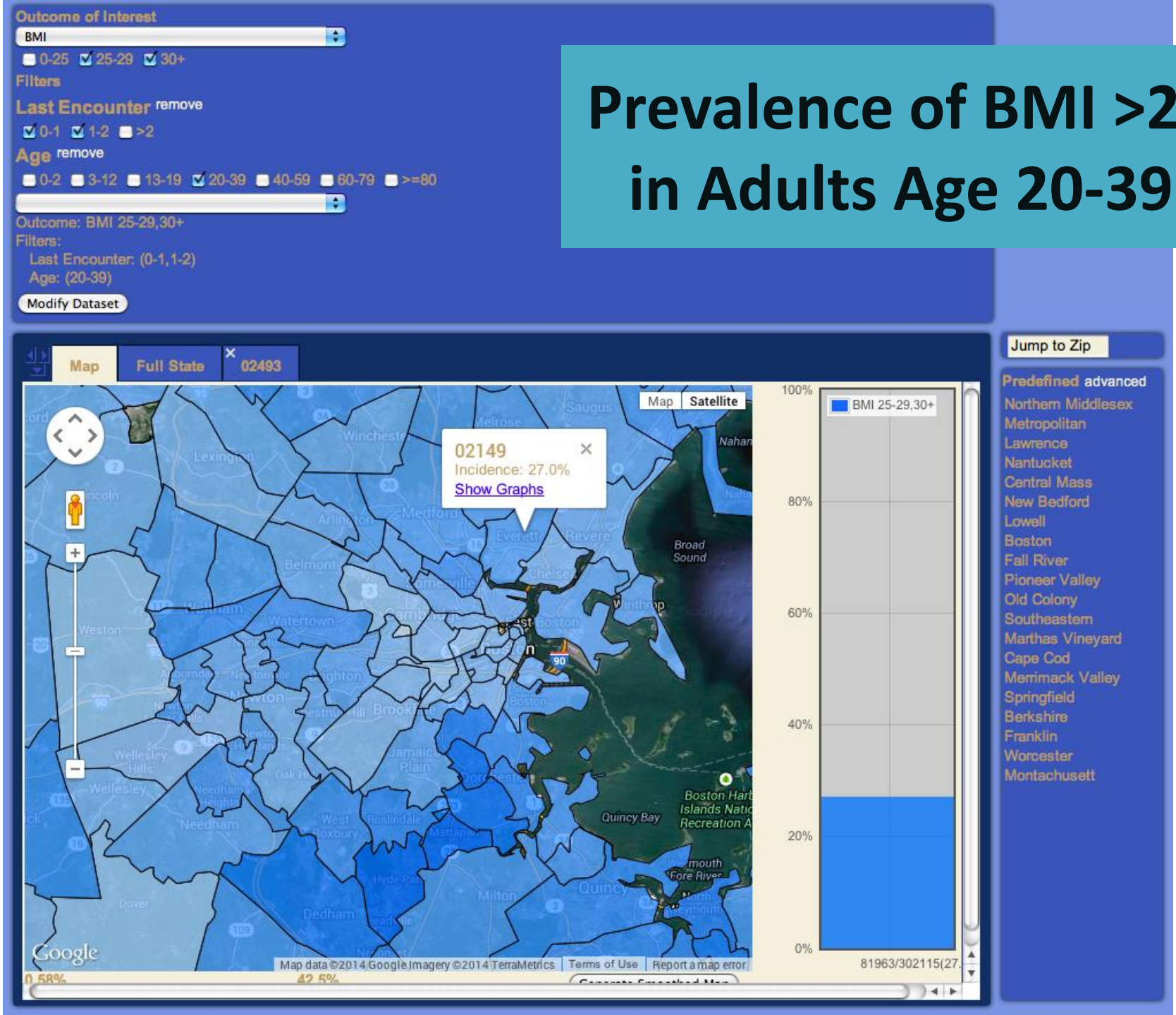
Select an Outcome



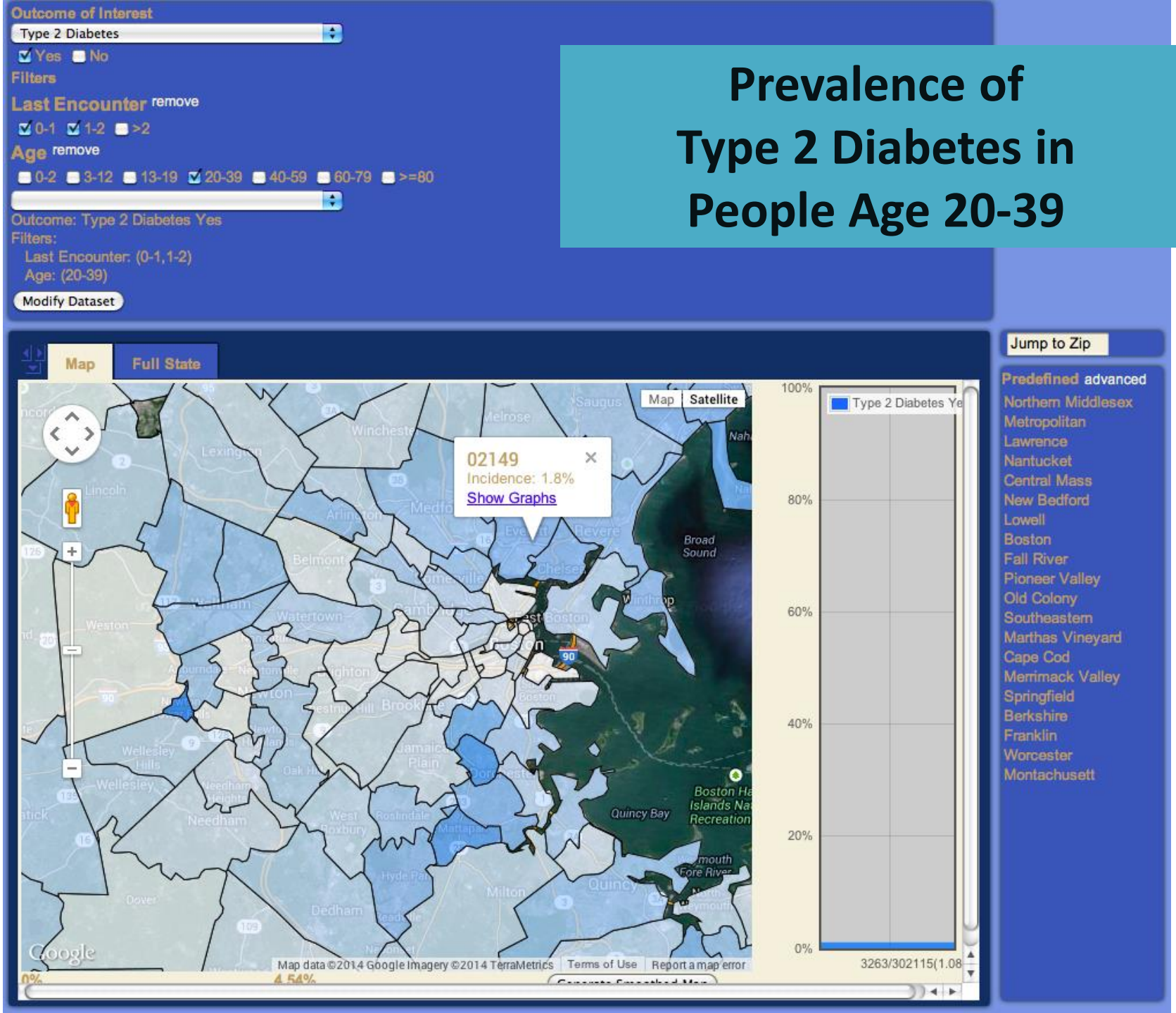
Add Filters (optional)



Prevalence of BMI >25 in Adults Age 20-39

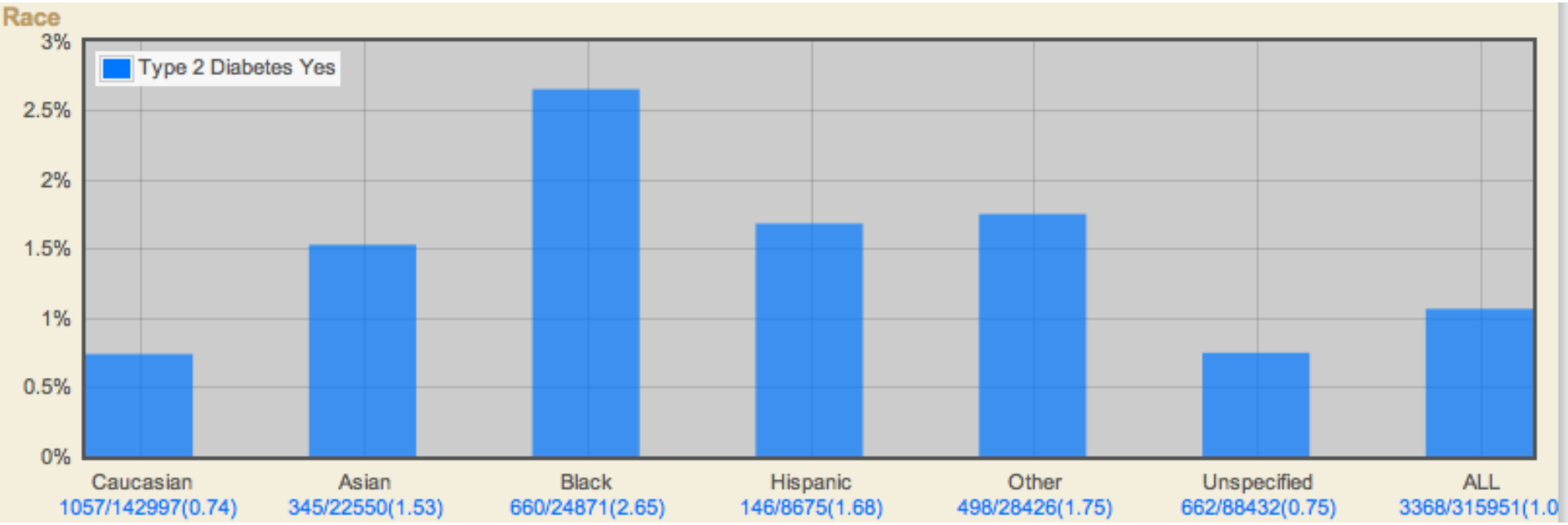


Prevalence of Type 2 Diabetes in People Age 20-39



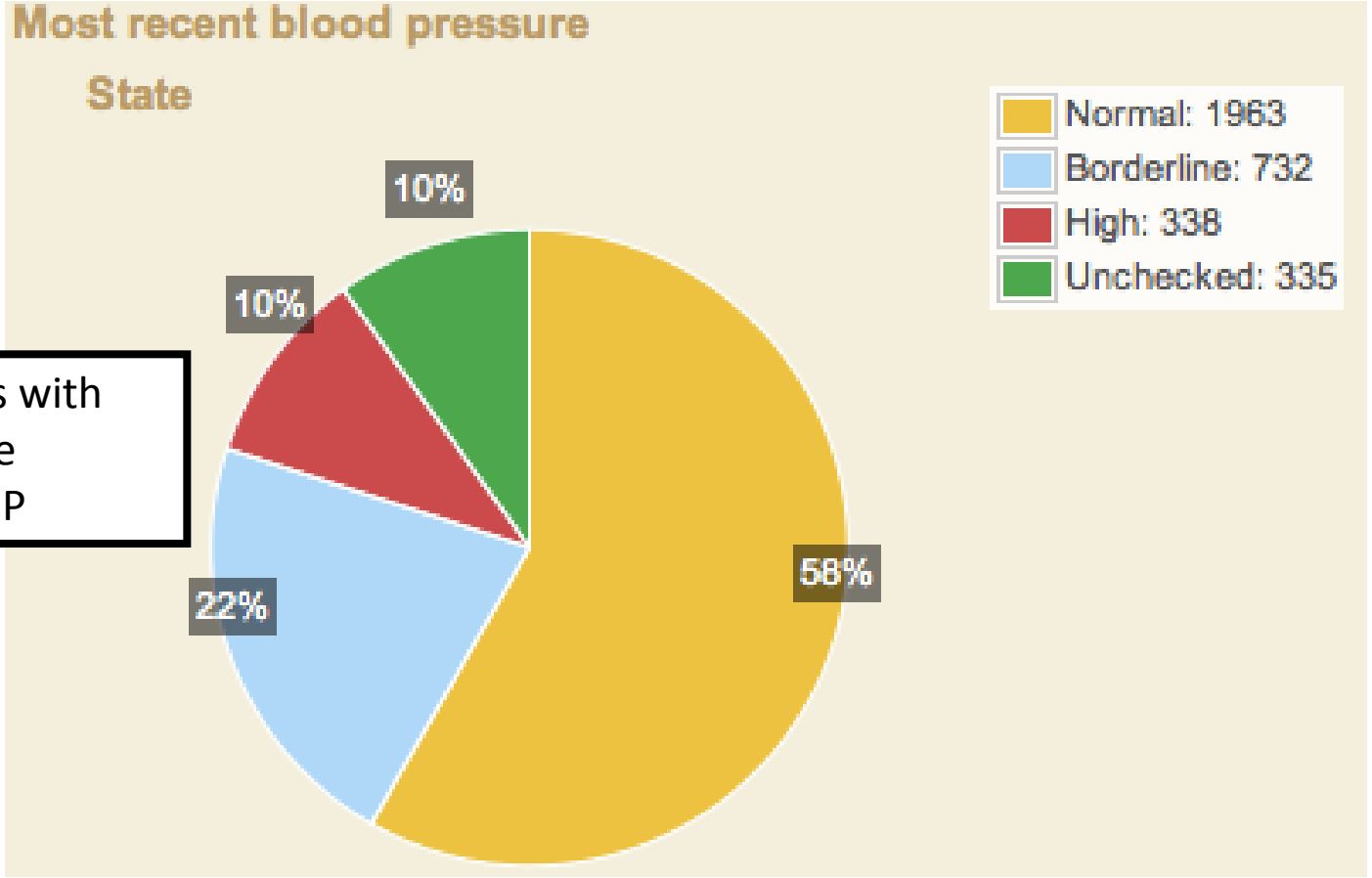
Automatically stratify by age, sex, race, BMI, BP, etc.

Type 2 Diabetes Prevalence, Age 20-39, by Race/Ethnicity



Assess Clinical Traits

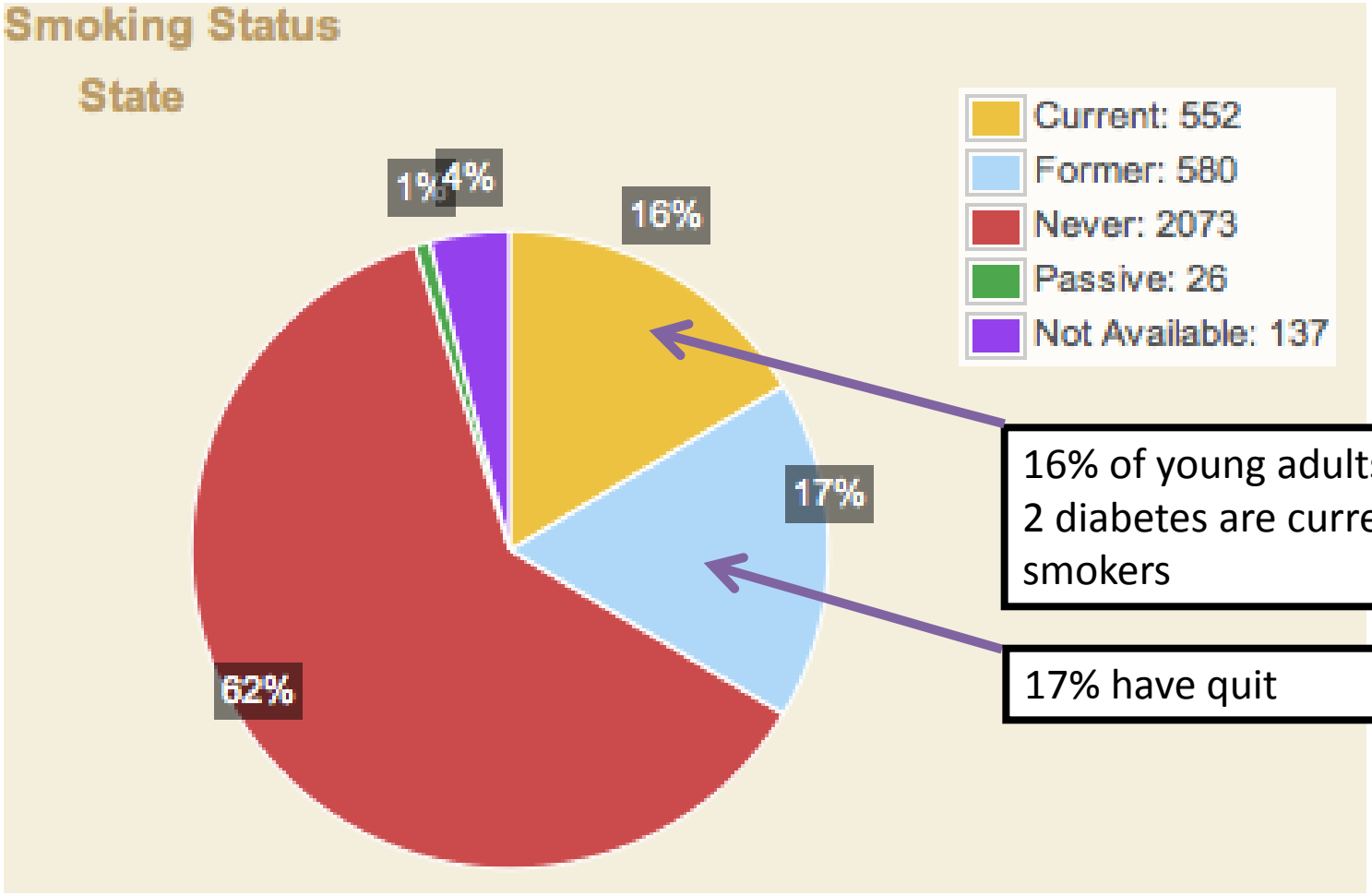
Most Recent BP in Young Adults with Type 2 Diabetes



32% of young adults with type 2 diabetes have borderline or high BP

Assess Risk Behaviors & Care Patterns

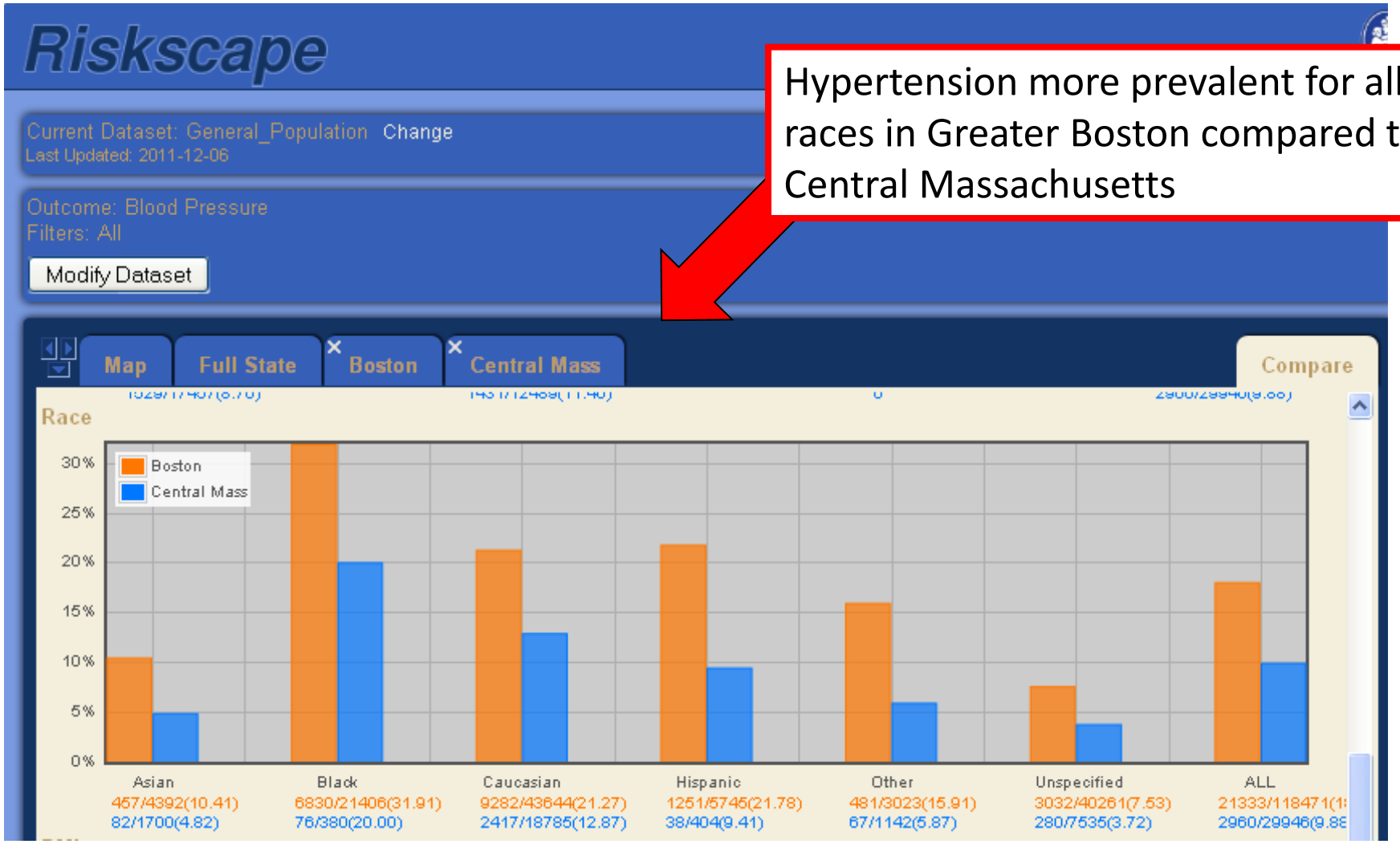
Smoking Status in Young Adults with Type 2 Diabetes



16% of young adults with type 2 diabetes are current smokers

17% have quit

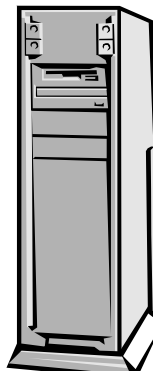
Compare Zip Codes or Regions of Interest



Hypertension more prevalent for all races in Greater Boston compared to Central Massachusetts

ESPnet: Automated disease detection and reporting for public health

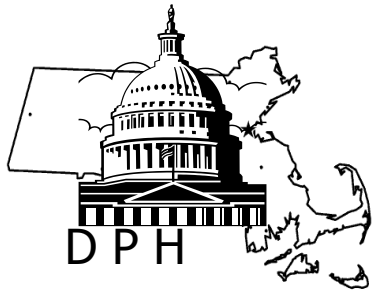
Practice EMR's **ESPnet Server** **Health Department**



case reports or
aggregate summaries

custom queries

?



diagnoses

lab results

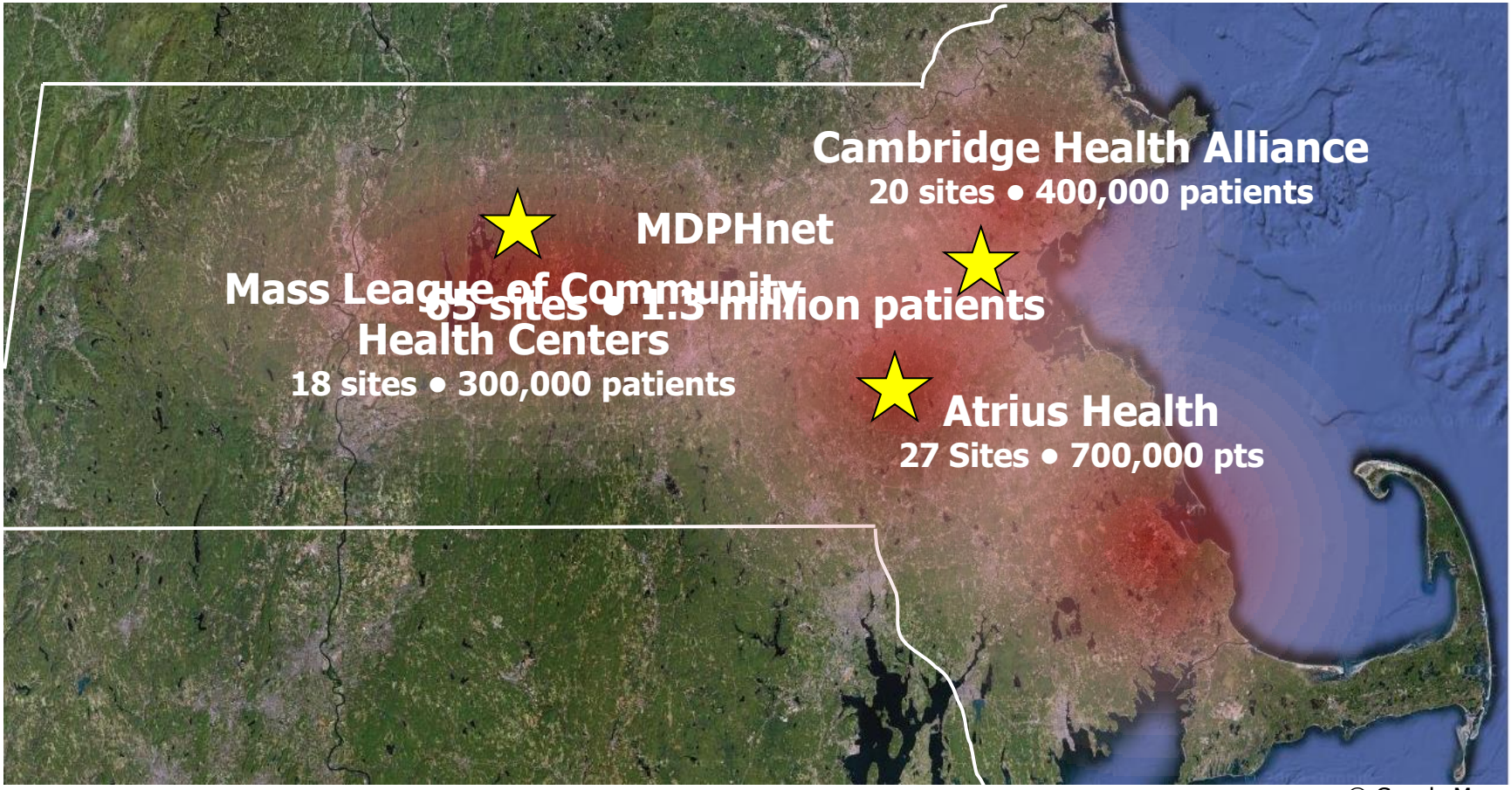
meds

vital signs

demographics

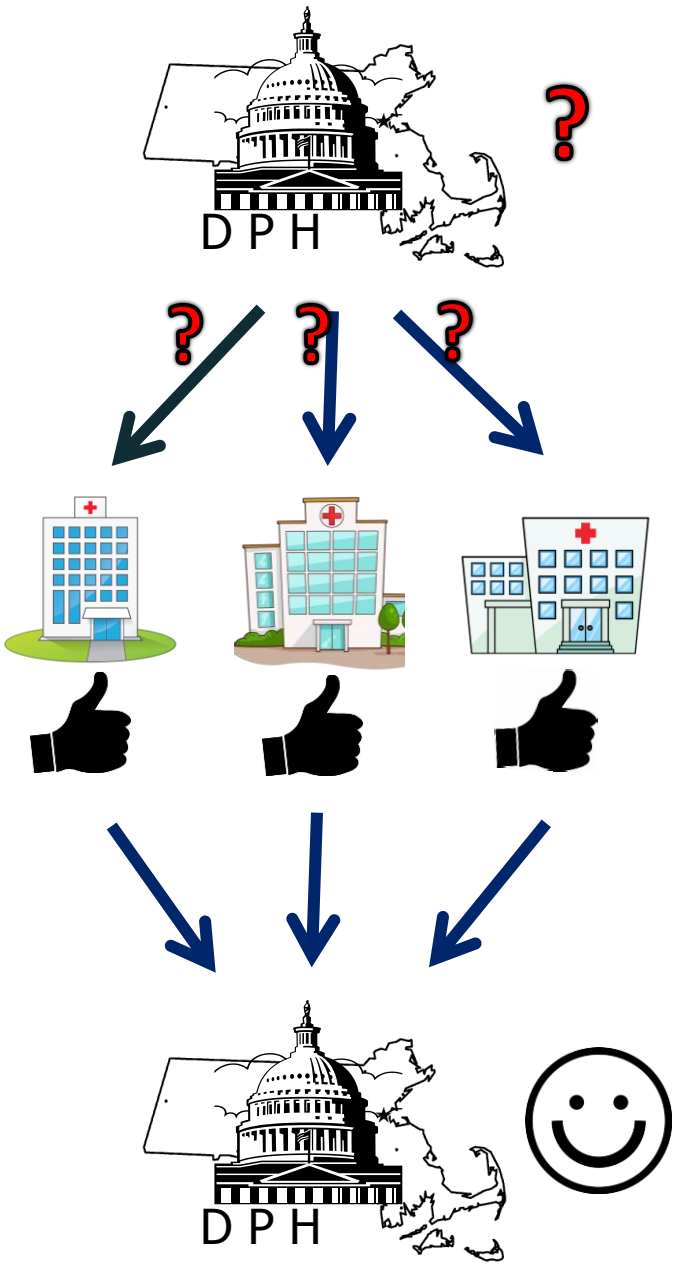
JAMIA 2009;16:18-24
Am J Pub Health 2012;102:S325–S332

MPDHnet



© Google Maps

MPDHnet



Step 1. Health department creates a query.

Step 2. MDPHnet distributes queries to practices

Step 3. Practices review queries & authorize execution against their local ESPnet tables

Step 4. MDPHnet integrates results and returns them to the health department

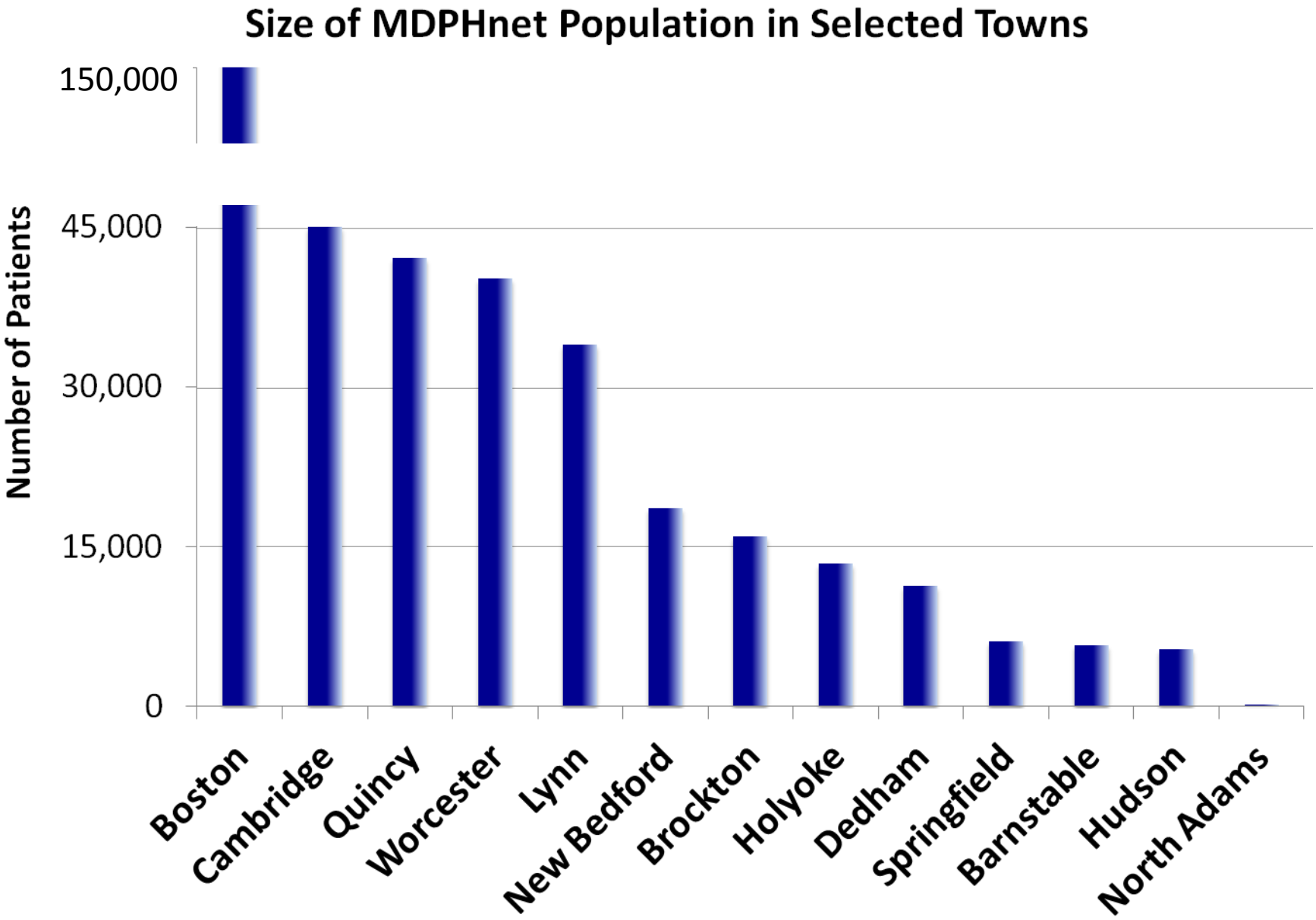
Images from clipartlord.com

Am J Public Health 2014;104:2265-70

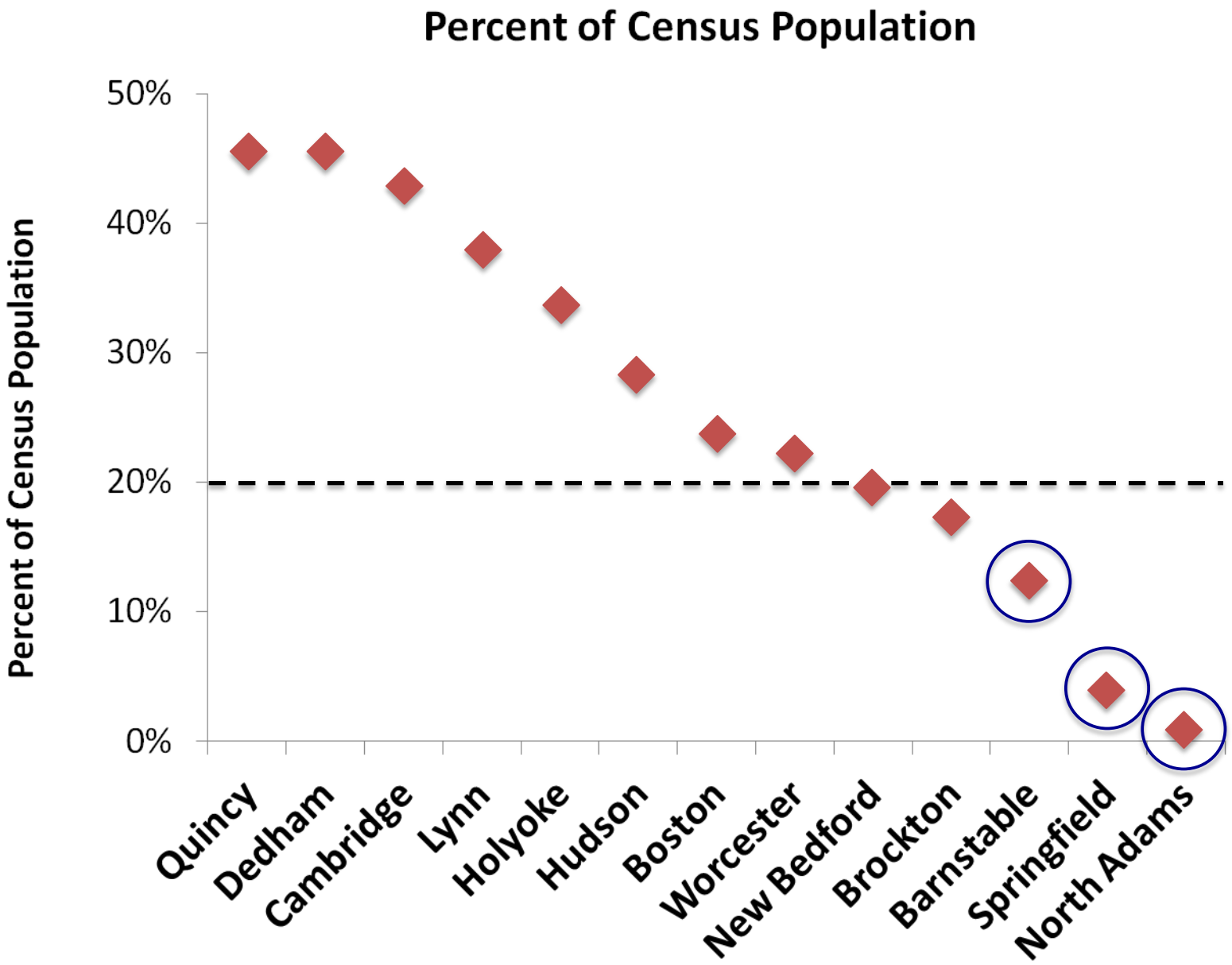
Population Under Surveillance

MDPHnet	BRFSS (2012)
1.3 million	**21,678**

MPDHnet Population Coverage



MPDHnet Population Coverage



MPDHnet Diabetes Definition

Any of the following:

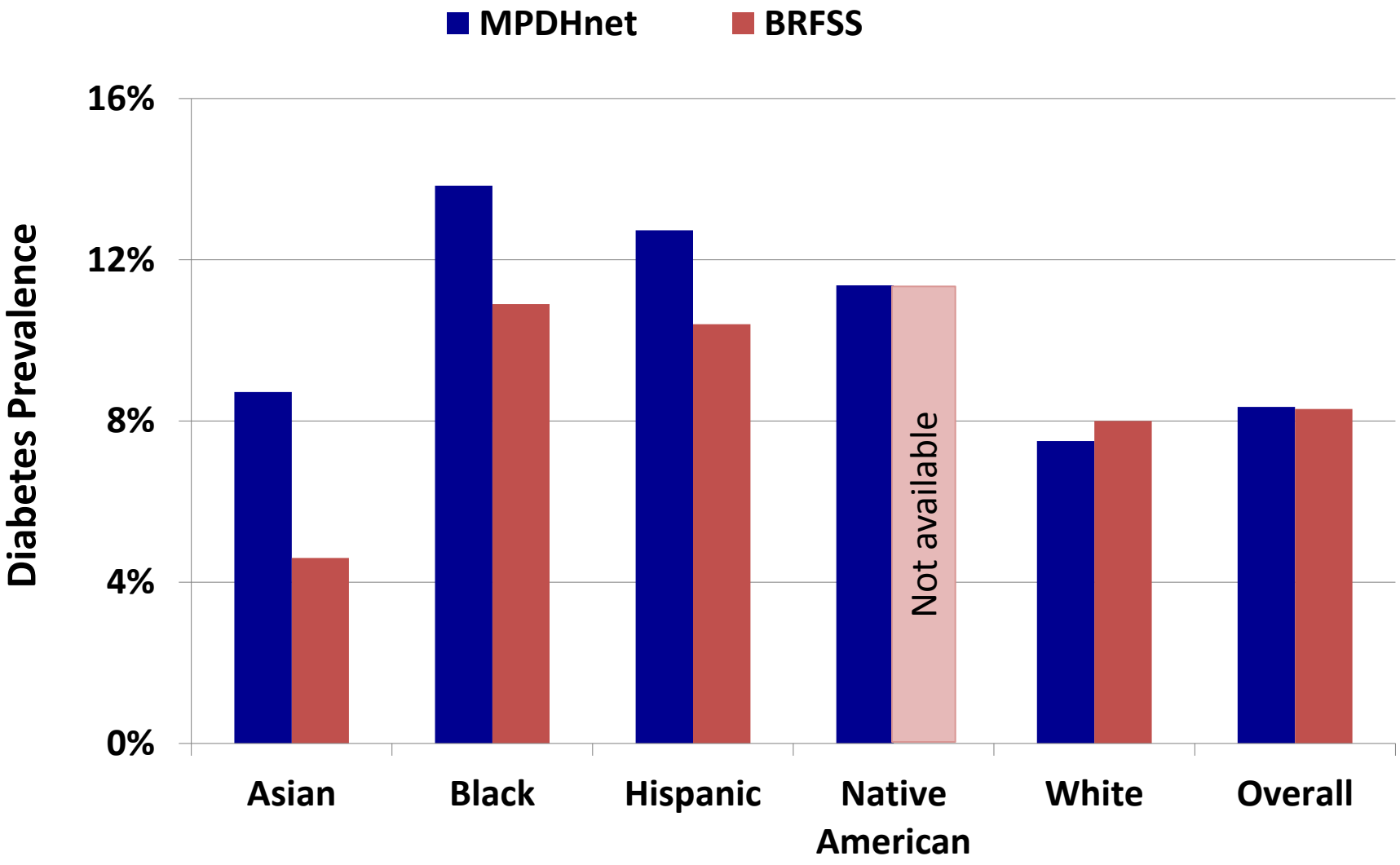
- Hemoglobin A1C ≥ 6.5
- Fasting glucose ≥126
- Random glucose ≥200 on two or more occasions
- Prescription for INSULIN outside of pregnancy
- ICD9 code 250.x (DM) on two or more occasions
- Prescription for any of the following:
  - GLYBURIDE, GLICLAZIDE, GLIPIZIDE, GLIMEPIRIDE
  - PIOGLITAZONE, ROSIGLITAZONE
  - REPAGLINIDE, NATEGLINIDE, MEGLITINIDE
  - SITAGLIPTIN
  - EXENATIDE, PRAMLINTIDE

Diabetes Care 2013;36:914-21

Diabetes Prevalence

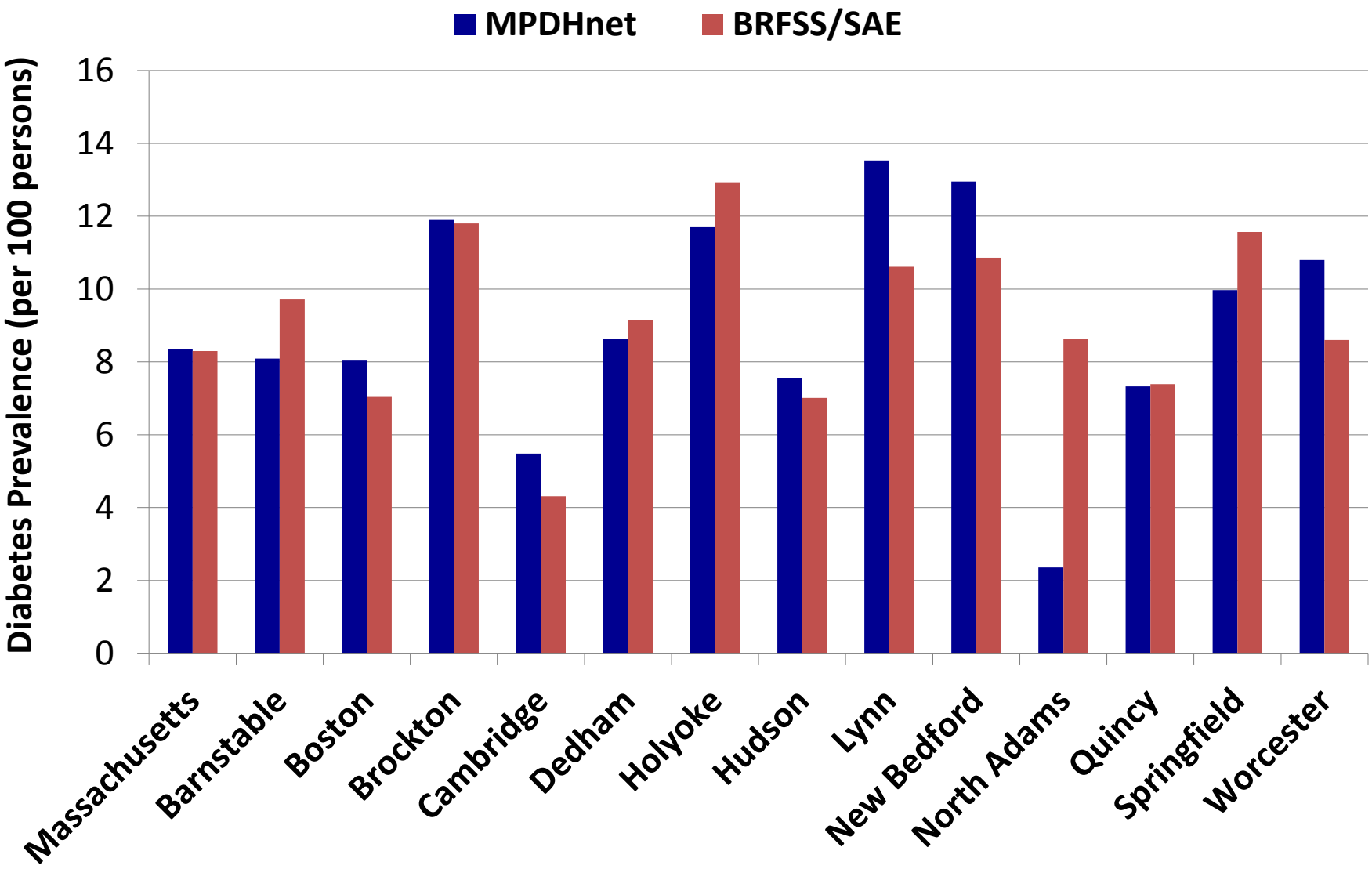
MDPHnet	BRFSS (2012)
8.35%	**8.30%**
(8.29-8.40)	**(7.80-8.90)**

Diabetes Prevalence by Race/Ethnicity
MDPHnet vs BRFSS



Diabetes Prevalence

MDPHnet vs BRFSS/SAEs



Very Granular Queries Possible

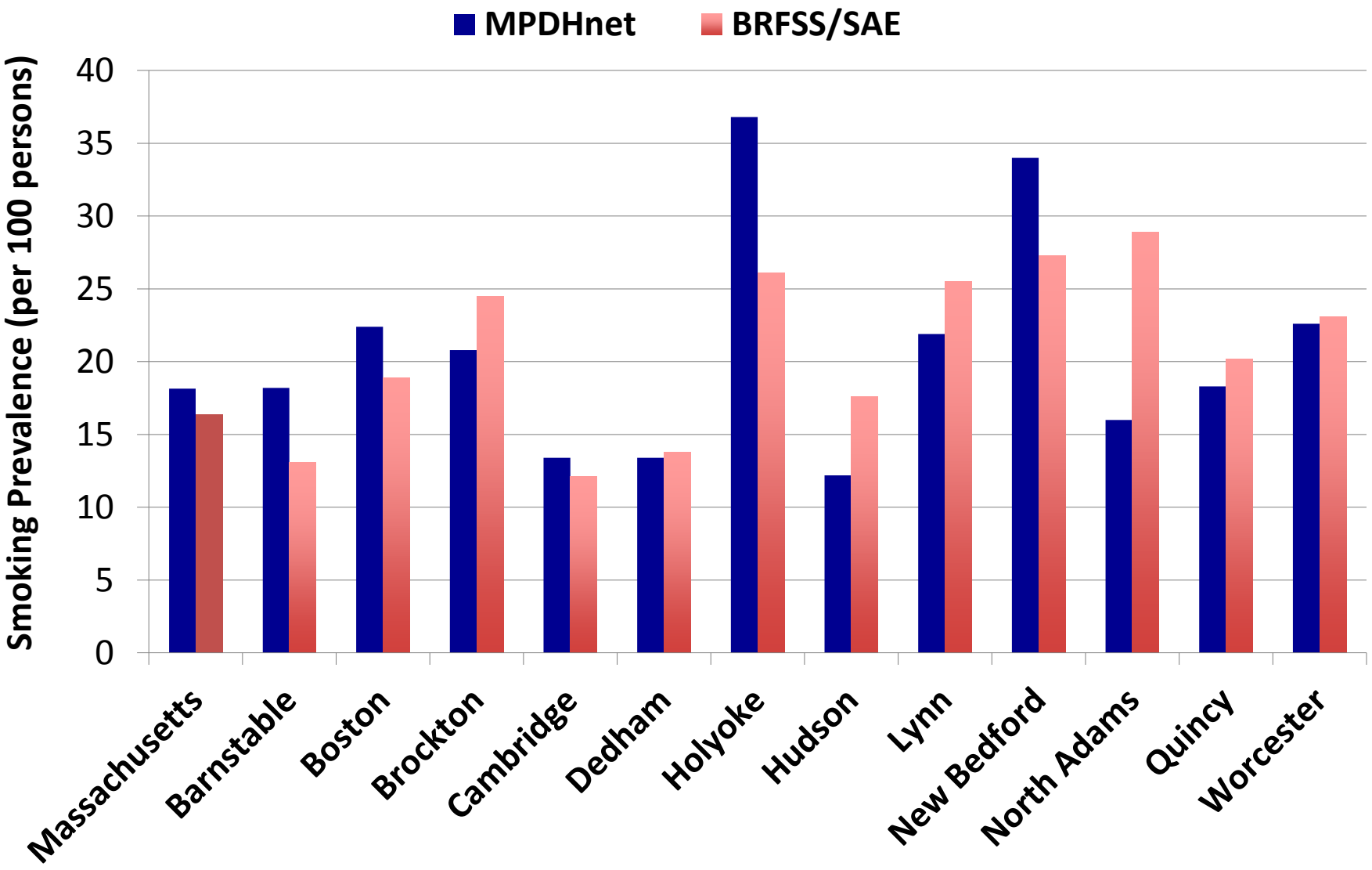
MDPHnet	BRFSS
• Prevalence of diabetes – amongst Asian women, – age 30-50, – living in Quincy	?
2.8% (sample size 1,381)	

Smoking Prevalence

MDPHnet	BRFSS (2012)
18.2%	16.4% (15.5-17.2)

Smoking Prevalence

MDPHnet vs BRFSS/SAEs



Advantages of MPDHnet

- Population under surveillance very large
  - 1.2 million versus ~22,000 for BRFSS
- Timely data
  - 1-2 weeks versus 1-2 years for BRFSS
- Coverage of children and adolescents
  - MDPHnet includes ~250,000 people under age 18
- Data on rare conditions of public health interest
  - e.g. type 2 diabetes in youth
- Clinical measures rather than self-reports
  - e.g. body mass index, blood pressure, hemoglobin A1C
- Data on care patterns
  - visit frequency, medications prescribed, lab parameters, etc.

Limitations of MDPHnet

- Very little or no data on health behaviors
  - exercise, seat belt use, dietary patterns,
- Population coverage is not random
  - but tools for adjusting estimates according to age, sex, and race/ethnicity of MPDHnet vs census data
- Clinical testing is targeted, not comprehensive
  - we only have encounters, vital signs, labs of interest for patients who a) sought care, and b) whose clinicians decided to check
- Potential for overcounting
  - when patients seek care from more than one MPDHnet practice
- Denominators are approximate
  - some patients see their doctors very rarely (leads to underestimating the denominator), no indication when a patient leaves a practice (leads to overestimating the denominator)

MDPHnet Team

- **MDPH**
  - Tom Land
  - Josh Vogel
  - Gillian Haney
  - Al DeMaria
- **Harvard Catalyst**
  - Charles Deutsch
- **Harvard Medical School / Harvard Pilgrim Health Care Institute**
  - Rich Platt
  - Jessica Malenfant
  - Melanie Davies
  - Jeff Brown
  - Chaim Kirby
- **Atrius Health**
  - Mike Lee
- **Commonwealth Informatics**
  - Catherine Rocchio
  - David Fram
  - Bob Zambarano
  - Carolina Cachin
- **Lincoln Peak Partners**
  - Mike Sullivan
  - Bruce Swan
  - Wendy Orth
- **Cambridge Health Alliance**
  - Brian Herrick
  - Vivian Li
  - Michelle Weiss
- **Mass League of Community Health Centers**
  - Ellen Hafer
  - Mark Josephson

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